

ABSTRACT

Various tools are created to facilitate the production system in the industrial world, so that the use of time and energy are spent more efficiently. With the existence of the Hook Trolley Control, AGV (Automated Guided Vehicles) can connect with the trolley, and the movement of the trolley will be controlled by AGV. This study discusses the design of control systems in the AGV that involves hook, trolley, image processing and microcontroller.

On AGV, hook will be connected to microcontroller and AGV. Hook consists of electric jack and iron plate, electric jack serves as a support and an actuator of iron plate that serves as a cross section load, iron plate can rise / fall, connect / release hook to / from trolley. AGV is also connected to a pc that works for processing data of image processing from webcam. This webcam will capture the existence of a trolley, this trolley image which is then processed by image processing. Then the data is sent to the microcontroller. After the data is processed then the microcontroller sends information to the motor driver to control the movement of AGV and control the electric jack movement.

From the research we obtained distance calculation between camera with the target object, so that AGV can stop at the closest distance to the object is 80 cm with a conversion in pixel is 2.5 pixels. To know the position of the object is in the straight line of the camera, then we make a center line of the camera, from the midline it can be seen that the object is on the left or right of the camera. After the AGV stops, the hook is lifted and connect the AGV and the trolley precisely according to the midpoint of the object so that the load is lifted and not loosened when both devices are running.

Keywords: AGV, microcontroller, trolley, hook, control system.